Attorney Docket No. AE97/151US

PATENT

#19/UB 2/25/03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES
(003259.84946)

Appellants:	**Forbert et al.**	**Paper No:**	**17**
U.S. Serial No.:	**09/447,030**	**Group Art Unit:**	**1754**
Filed:	**November 22, 1999**	**Examiner:**	**Nguyen, N.M.**
Title:	**Method for Producing Substantially Globular Lyogels and Aerogels**		

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Assistant Commissioner for Patents
Box Patent Appeal Brief
Washington, DC 20231

APPEAL BRIEF UNDER 37 C.F.R. § 1.192

Sir:

This appeal brief is filed in furtherance of the Notice of Appeal filed in this case on 14 October 2002.

Appellants appeal the decision of Examiner Nguyen in the Final Office Action mailed on June 14, 2002, and reaffirmed in the Advisory Action mailed on September 24, 2002, finally rejecting each of claims 13-24.

This appeal brief is being filed in triplicate. The fees required under 37 C.F.R. § 1.17(c) and any required petition for extension of time for filing this brief and corresponding fees are provided in the accompanying FEE TRANSMITTAL FORM.

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I. REAL PARTY IN INTEREST (37 C.F.R. § 1.192(c)(1))

The real party in interest in this appeal is Cabot Corporation, a Massachusetts corporation having a principal place of business in Billerica, Massachusetts.

II. RELATED APPEALS AND INTERFERENCES (37 C.F.R. § 1.192(c)(2))

There are no other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS (37 C.F.R. § 1.192(c)(3))

There are a total of 12 claims presented on appeal, which are identified as claims 13-24.

This case was originally filed with 12 claims. On 22 February 2001, Appellants cancelled claims 1-12 without prejudice to Appellants' right to claim the subject matter thereof, and Appellants added new claims 1-12. New claims 1-12 were renumbered by the Examiner as claims 13-24, in accordance with 37 C.F.R. 1.126 and M.P.E.P. 608.01(j).

The full text of each of the claims on appeal is set forth in the Appendix attached to this brief.

IV. STATUS OF AMENDMENTS (37 C.F.R. § 1.192(c)(4))

Appellants filed a response to the final Office Action on 29 August 2002. Appellants did not amend the claims in the response to the final Office Action.

V. SUMMARY OF INVENTION (37 C.F.R. § 1.192(c)(5))

The claimed method solves problems associated with producing substantially globular lyogels. A lyogel (for example, a silica lyogel) can be formed by gellation of a corresponding lyosol. Typically, a lyogel is produced in the form of particles. The gel has a network structure with open spaces such as pores filled with liquid[1]. In certain industrial applications, it is advantageous to have globular gel particles. Prior techniques for producing globular gel particles are discussed in the specification, along with their shortcomings. Globular gel particles formed in mineral oil are

[1] If the liquid is an organic solvent, the lyogel can be referred to more specifically as an organogel. If the liquid is aqueous, the lyogel can be referred to more specifically as a hydrogel.

contaminated by the oil. Gel particles formed by dropping lyosol in air requires a tower high enough (and, therefore, costly) to permit a drop time as long as the sol-to-gel conversion time.

In the present invention, gel forming components are mixed to produce a lyosol (page 5, lines 17-18 of the specification), after which the lyosol, in order to form a lyogel, is introduced into a moving medium which flows substantially against the direction of gravity and which does not perceptibly dissolve in the lyosol (page 6, lines 6-7; page 5, lines 17-19).

An advantage of a moving medium which flows against the direction of gravity is to achieve increased dwell time of the lyosol particles in the medium, so that the overall height of the appliance (e.g., tower, etc.) can be markedly reduced (page 5, last full paragraph). Additional advantages of the moving medium include grading or classifying the gel particles by flow velocity of the moving medium. For example, particles with a diameter below the limit grain diameter which corresponds to the flow velocity can be delivered upwardly whereas larger particles are delivered downwardly. These significant advantages are coupled in the claimed invention, with advantages from using a moving medium which does not perceptibly dissolve in the lyosol.

VI. ISSUES (37 C.F.R. § 1.192(c)(6))

The issues on appeal are as follows:

1. Whether each of claims 13-14 is allowable under § 112, second paragraph;

2. Whether each of claims 13-14 and 16-19 is allowable under § 102(b) over Bergna et al. (US 4,131,542) with Grant and Hackh's Chemical Dictionary and Chemical Engineer's Handbook to show inherent state of fact;

3. Whether each of claims 13-14 and 16-22 is allowable under § 103(a) over Bergna '542 with Grant and Hackh's Chemical Dictionary and Chemical Engineer's Handbook; and

4. Whether each of claims 13-24 is allowable under § 103(a) over Marisic (US 2,384,946) in view of Fernholz et al. (US 3,939,199) and optionally further in view of Mielke et al.

(US 5,656,195).

VII. GROUPING OF CLAIMS (37 C.F.R. § 1.192(c)(7))

Appellants submit that each of the claims is separately patentable. Accordingly, the claims do not stand or fall together. The reasons for the patentability of each of claims 13-24 are set forth in the Arguments section below. Thus, for purposes for this appeal, the claims are grouped as follows.

Group I	Claim 13
Group II	Claim 14
Group III	Claim 15
Group IV	Claim 16
Group V	Claim 17
Group VI	Claim 18
Group VII	Claim 19
Group VIII	Claim 20
Group IX	Claim 21
Group X	Claim 22
Group XI	Claim 23
Group XII	Claim 24

VIII. ARGUMENTS (37 C.F.R. § 1.192(c)(8))

Issue 1: **Each of Claims 13-24 Meet the Definiteness Requirement of 35 U.S.C. § 112**

Claims 13-24 (Groups I-XII, respectively) are improperly rejected under § 112, second paragraph for the use in claim 13 of the term "perceptibly" and "perceptibly dissolve in the lyosol." Claim 13 calls out that the moving medium which flows substantially against the direction of gravity

and into which the lyosol is introduced in order to form a lyogel, does not perceptibly dissolve in the lyosol.

The meaning of the phrase "does not perceptibly dissolve in the lyosol," as recited in claim 13, is well recognized by those skilled in the art. It is well established that if the meaning of a term used in a claim is understood by one of ordinary skill in the art, then the term is considered to be sufficiently definite to meet the requirements of § 112.

The word "perceptibly" is the adverb form of perceptible, which is defined as capable of being perceived. See 10th Ed. Merriam-Webster's Collegiate Dictionary (previously cited to the Examiner; copy attached as Exhibit A to this brief).

Further, the word "perceptibly" is a well-recognized word in the chemical arts and is widely used in US patents. A search at the US Patent and Office web site shows that at least 1405 US patents use the term "perceptibly" and that is just those US patents that are text-searchable. In fact, fully 90 of those searchable US patents use "perceptibly" in their claims. Accordingly, each of claims 13-24 (Groups I-XII, respectively) fully meets the requirements of §112 in using the well-recognized chemical term "perceptibly."

Issue 2: **Claims 13-14 and 16-19 Are Patentable Over by Bergna et al.**

Claims 13-14 and 16-19 are patentable under § 102(b) over Bergna et al. (US 4,131,542) together with Grant and Hackh's Chemical Dictionary (page 258) and Chemical Engineer's Handbook (pp. 20-58 to 20-63). Claim 13 (Group I), from which claims 14 and 16-19 depend, recites a method for producing substantially globular lyogels in which the gel forming components are mixed to produce a lyosol, after which the lyosol, in order to form a lyogel, is introduced into a moving medium which flows substantially against the direction of the force of gravity and which does not perceptibly dissolve in the lyosol.

In contrast, Bergna et al. expressly teaches avoidance of gelling. The tendency of its sol to gel is said to be "marked, in its incipient stages, by an increase in the viscosity of the sol" (Col. 4, lines 39-41) Bergna et al. teaches that its sol is dried before any substantial increase in viscosity has occurred (Col. 4, lines 31-35). Nowhere does Bergna et al. suggest that spray drying be used to achieve formation of a gel and, rather Bergna et al. takes "dried sol" from the spray-drying apparatus.

To further support this point, Bergna goes on to state that spray drying is used to achieve rapid drying of the sol. See Col. 4, lines 41-43. In addition, the Examiner acknowledges on page 9 of the Office Action that Bergna et al. teaches that spray drying is carried out before gelling.

The present claims patentably distinguish over Bergna et al. Claim 13 (Group I) expressly recites a method wherein lyogel forms when the lyosol is introduced into a moving medium which flows substantially against the direction of the force of gravity and which does not perceptibly dissolve in the lyosol. Because Bergna et al. fails to disclose formation of a gel by introducing a lyosol into a moving medium which flows substantially against the direction of the force of gravity and which does not perceptibly dissolve in the lyosol, claim 13 (Group I) is not anticipated by Bergna et al.

Further, Bergna et al. never discloses, teaches or suggests forming a gel, but is instead directed to drying aquasol or organosol into porous micrograins referred to as "PMG" in Bergna et al., that are then sintered. Bergna et al. repeatedly discusses prevention of gel formation by rapidly spray-drying the sol and/or adjusting the pH to stabilize the sol against gelling or aggregation. See, e.g., Col. 4, lines 36-42 and Col, 4, lines 16-22. Accordingly, Bergna et al. fails to disclose the subject matter of claim 13, and, therefore, Bergna et al. does not anticipate claim 13.

Further showing that Bergna et al. is not producing gels, Bergna et al. recites at Column 1, lines 45-46, that "the present process involves spray-drying an aqueous sol in a manner similar to that disclosed in U.S. Pat. 3,301,635." U.S. Pat. 3,301,635 describes formation of amorphous silica bodies and not formation of gel. Amorphous colloidal silica powder is heated in the '65 patent to a temperature of at least 1000 °C to form amorphous silica bodies. See Column 1, lines 14-18 of U.S. Pat. 3,301,635.

The Examiner refers Appellants to column 8, lines 8-11, where a process of freeze-drying is discussed. Bergna et al. states at column 7, lines 70-72 that freeze-drying is another method for converting a silica sol to a dry powder with minimum coalescence of the ultimate amorphous silica particles. This simply fails to disclose forming a lyogel by introducing a lyosol into a moving medium which flows substantially against the direction of the force of gravity and which does not perceptibly dissolve in the lyosol.

Grant and Hackh's Chemical Dictionary (page 258) and Chemical Engineer's Handbook (pp.

20-58 to 20-63) cannot cure the deficiencies of Bergna et al. discussed above. Nor is either one cited by the Examiner as teaching the formation of substantially globular lyogel by introducing lyosol into a moving medium which flows substantially against the direction of gravity and which does not perceptibly dissolve in the lyosol.

Because the citations fail to disclose each and every element of claim 13, claim 13 is not anticipated by Bergna et al. with Grant and Hackh's Chemical and Chemical Engineer's Handbook. Rather, claim 13 is patentable over these citations.

Claim 14 (Group II) depends from claim 13 and is patentable over Bergna et al. for at least the same reasons as claim 13 and for at least the additional reason that claim 14 further recites that the medium of claim 13 is air. Therefore, claim 14 (Group II) is not anticipated by Bergna et al. with Grant and Hackh's Chemical and Chemical Engineer's Handbook.

Claim 16 (Group IV) depends from claim 14 and is patentable over Bergna et al. for at least the same reasons as claim 14 and for at least the additional reason that claim 16 further recites that the lyosol is introduced dropwise into moving air. Therefore, claim 16 (Group IV) is not anticipated by Bergna et al. with Grant and Hackh's Chemical and Chemical Engineer's Handbook.

Claim 17 (Group V) depends from claim 14 and is patentable over Bergna et al. for at least the same reasons as claim 14 and for at least the additional reason that claim 17 further recites that the lyosol is sprayed into moving air. Therefore, claim 17 (Group V) is not anticipated by Bergna et al. with Grant and Hackh's Chemical and Chemical Engineer's Handbook.

Claim 18 (Group VI) depends from claim 14 and is patentable over Bergna et al. for at least the same reasons as claim 14 and for at least the additional reason that claim 18 further recites that the lyosol particles are screened to size by the air stream which is directed in opposition to the force of gravity. Therefore, claim 18 (Group VI) is not anticipated by Bergna et al. with Grant and Hackh's Chemical and Chemical Engineer's Handbook.

Claim 19 (Group VII) depends from claim 14 and is patentable over Bergna et al. for at least the same reasons as claim 14 and for at least the additional reason that claim 19 further recites that the velocity of the air stream diminishes in the direction of flow. Therefore, claim 19 (Group VII) is not anticipated by Bergna et al. with Grant and Hackh's Chemical and Chemical Engineer's Handbook.

For the foregoing reasons, Bergna et al. with Grant and Hackh's Chemical and Chemical Engineer's Handbook fails to anticipate any of claims 13-14 and 16-19. Appellants request withdrawal of the rejection and allowance of claims 13-14 and 16-19.

Issue 3: **Claims 13-14 and 16-22 Are Patentable Over Bergna et al. together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook**

Claims 13 and 14 (Groups I and II, respectively) and 16-22 (Groups IV-X, respectively) are patentable under § 103(a) over Bergna et al. taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook.

The discussion above in reference to claim 13 and Issue 2 is incorporated here by reference. In brief, Bergna et al. teaches avoidance of gelling, whereas in the subject claims, a lyosol, in order to form a lyogel, is introduced into a moving medium which flows substantially against the direction of the force of gravity and which does not perceptibly dissolve in the lyosol. Thus, Bergna et al. teaches away from the claimed method, and taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook fails to disclose, teach or suggest the subject matter of claim 13.

Claim 14 (Group II) depends from claim 13 and is patentable over Bergna et al., taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook, for at least the same reasons as claim 13, and for at least the additional reason that claim 14 further recites that the medium of claim 13 is air. Therefore, claim 14 is not obvious over Bergna et al. taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook.

Claim 16 (Group IV) depends from claim 14 and is patentable over Bergna et al., taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook, for at least the same reasons as claim 14 and for at least the additional reason that claim 16 further recites that the lyosol is introduced dropwise into moving air. Therefore, claim 16 is not obvious over Bergna et al. taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook.

Claim 17 (Group V) depends from claim 14 and is patentable over Bergna et al., taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook, for at least the same reasons as claim 14 and for at least the additional reason that claim 17 further recites that the lyosol is sprayed into moving air. Therefore, claim 17 is not obvious over Bergna et al. taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook.

Claim 18 (Group VI) depends from claim 14 and is patentable over Bergna et al., taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook, for at least the same reasons as claim 14 and for at least the additional reason that claim 18 further recites that the lyosol particles are screened to size by the air stream which is directed in opposition to the force of gravity. Therefore, claim 18 is not obvious over Bergna et al. taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook.

Claim 19 (Group VII) depends from claim 14 and is patentable over Bergna et al., taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook, for at least the same reasons as claim 14 and for at least the additional reason that claim 19 further recites that the velocity of the air stream diminishes in the direction of flow. Therefore, claim 19 is not obvious over Bergna et al. taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook.

Claim 20 (Group VIII) depends from claim 13 and is patentable over is patentable over Bergna et al., taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook, for at least the same reasons as claim 13 and for at least the additional reason that claim 20 further recites that the lyosol particles are trapped in a layer of water. Therefore, claim 20 is not obvious over Bergna et al. taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook.

Claim 21 (Group IX) depends from claim 13 and is patentable over Bergna et al., taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook, for at least the same reasons as claim 13 and for at least the additional reason that claim 21 further recites that the lyosol particles are formed from silicic acid and mineral acid.

Therefore, claim 21 is not obvious over Bergna et al. taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook.

Claim 22 (Group X) depends from claim 13 and is patentable over Bergna et al., taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook, for at least the same reasons as claim 13 and for at least the additional reason that claim 22 further recites that the lyosol particles are formed from a sodium water-glass solution and hydrochloric acid. Therefore, claim 22 is not obvious over Bergna et al. taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook.

Accordingly, each of claims 13 and 14 (Groups I and II, respectively) and 16-22 (Groups IV-X, respectively) is patentable over Bergna et al. taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook. Appellants believe the rejection to be improper and request withdrawal of the rejection and allowance of claims 13-14 and 16-22.

Issue 4. **Claims 13-24 Are Patentable over Marisic in View of Fernholz et al. and Optionally in View of Mielke et al.**

Claims 13-24 are patentable under § 103(a) over Marisic (US 2,384,946) in view of Fernholz et al. (US 3,939,199) and optionally in view of Mielke et al. (US 5,656,195). Claims 13-24 are not obvious over Marisic in view of Fernholz et al. and/or Mielke et al., because these citations fail to teach or suggest all the elements of the claimed subject matter.

There is no teaching or suggestion in Marisic that a lyosol be introduced into a moving medium which does not perceptibly dissolve in the lyosol. Rather, Marisic expressly teaches: "it is essential ... that the **[hydro]sol** be not mechanically disturbed during the time of setting." See page 2, right column, lines 1-5. Consistent with this contrary teaching, the fluid medium filling most of Marisic's tank 11 does not flow substantially against the direction of the force of gravity. See page 2, right column, lines 41-56.

In stark contrast, claim 13 (Group I) recites mixing gel forming components to produce a lyosol, after which the lyosol, in order to form a lyogel, is introduced into a moving medium which

flows substantially against the direction of the force of gravity and which does not perceptibly dissolve in the lyosol. Thus, Marisic explicitly teaches away from the method of claim 13.

Fernholz et al. fails to cure the deficiencies of Marisic. Fernholz et al. is directed to oxacylation of olefins in the gaseous phase. Fernholz et al. forms particles without pores by hydrolysis of silicium, zirconium and titanium tetrachloride in a hydrogen-air or oxyhydrogen flame or by melting micronized substances by blowing the particles through a hot flame. See column 1, line 66 to column 2, line 9. There is no teaching or suggestion in Fernholz et al. to mix gel-forming components to produce a lyosol. Instead, Fernholz et al. teaches using silicic acid as a support for a catalyst. See claim 1 of Fernholz et al. Therefore, Fernholz et al. does not cure the fundamental deficiency of Marisic and can not overcome Marisic's explicit teaching away from the method of claim 13. Thus, Marisic in view of Fernholz et al. fails to disclose, teach or suggest the subject matter of claim 13.

In addition, there is no suggestion or motivation to combine Fernholz et al. with Marisic. In particular, because Marisic is directed to hydrogel pellets and because Fernholz et al. is directed to using particles without pores as a support for a catalyst, one skilled in the art would not combine Fernholz et al. and Marisic. That is, one skilled in the art would not look to Fernholz et al. to modify Marisic. Accordingly, Marisic and Fernholz et al. are not properly combinable.

Mielke et al. fails to cure the deficiencies of Marisic in view of Fernholz et al. Mielke et al. states that silica gel particles can be prepared from a waterglass solution by the stages of silica hydrogel, solvent exchange, and subsequent supercritical drying. See column 2, lines 30-36 of Mielke et al. There is no teaching or suggestion in Mielke et al. to introduce a lyosol into a moving medium which does not perceptibly dissolve in the lyosol.

Because Marisic in view of Fernholz et al. and/or Mielke et al. fails to teach or suggest all elements of claim 13, claim 13 (Group I) is patentable over Marisic in view of Fernholz et al. and/or Mielke et al.

Claim 14 (Group II) depends from claim 13 and is patentable over Marisic in view of Fernholz et al. and/or Mielke et al. for at least the same reasons as claim 13 and for at least the additional reason that claim 14 further recites that the medium of claim 13 is air. Therefore, claim 14 is not obvious over Marisic in view of Fernholz et al. and/or Mielke et al.

Claim 15 (Group III) depends from claim 14 and is patentable over Marisic in view of Fernholz et al. and/or Mielke et al. for at least the same reasons as claim 14 and for at least the additional reason that claim 15 further recites that the air contains at least one further gaseous medium. Therefore, claim 15 is not obvious over Marisic in view of Fernholz et al. and/or Mielke et al.

Claim 16 (Group IV) depends from claim 14 and is patentable over Marisic in view of Fernholz et al. and/or Mielke et al. for at least the same reasons as claim 14 and for at least the additional reason that claim 16 further recites that the lyosol is introduced dropwise into moving air. Therefore, claim 16 is not obvious over Marisic in view of Fernholz et al. and/or Mielke et al.

Claim 17 (Group V) depends from claim 14 and is patentable over Marisic in view of Fernholz et al. and/or Mielke et al. for at least the same reasons as claim 14 and for at least the additional reason that claim 17 further recites that the lyosol is sprayed into moving air. Therefore, claim 17 is not obvious over Marisic in view of Fernholz et al. and/or Mielke et al.

Claim 18 (Group VI) depends from claim 14 and is patentable over Marisic in view of Fernholz et al. and/or Mielke et al. for at least the same reasons as claim 14 and for at least the additional reason that claim 18 further recites that the lyosol particles are screened to size by the air stream which is directed in opposition to the force of gravity. Therefore, claim 18 is not obvious over Marisic in view of Fernholz et al. and/or Mielke et al.

Claim 19 (Group VII) depends from claim 14 and is patentable over Marisic in view of Fernholz et al. and/or Mielke et al. for at least the same reasons as claim 14 and for at least the additional reason that claim 19 further recites that the velocity of the air stream diminishes in the direction of flow. Therefore, claim 19 is not obvious Marisic in view of Fernholz et al. and/or Mielke et al.

Claim 20 (Group VIII) depends from claim 13 and is patentable over Marisic in view of Fernholz et al. and/or Mielke et al. for at least the same reasons as claim 13 and for at least the additional reason that claim 20 further recites that the lyosol particles are trapped in a layer of water. Therefore, claim 20 is not obvious over Marisic in view of Fernholz et al. and/or Mielke et al.

Claim 21 (Group IX) depends from claim 13 and is patentable over Marisic in view of Fernholz et al. and/or Mielke et al. for at least the same reasons as claim 13 and for at least the

additional reason that claim 21 further recites that the lyosol particles are formed from silicic acid and mineral acid. Therefore, claim 21 is not obvious over Marisic in view of Fernholz et al. and/or Mielke et al.

Claim 22 (Group X) depends from claim 13 and is patentable over Marisic in view of Fernholz et al. and/or Mielke et al. for at least the same reasons as claim 13 and for at least the additional reason that claim 22 further recites that the lyosol particles are formed from a sodium water-glass solution and hydrochloric acid. Therefore, claim 22 is not obvious over Marisic in view of Fernholz et al. and/or Mielke et al.

Claim 23 (Group XI) depends from claim 13 and is patentable over Marisic in view of Fernholz et al. and/or Mielke et al. for at least the same reasons as claim 13 and for at least the additional reason that claim 23 further recites that the substantially globular lyogels produced according to claim 13 are used to produce aerogels. Therefore, claim 23 is not obvious over Marisic in view of Fernholz et al. and/or Mielke et al.

Claim 24 (Group XII) depends from claim 13 and is patentable over Marisic in view of Fernholz et al. and/or Mielke et al. for at least the same reasons as claim 13 and for at least the additional reason that claim 24 further recites a method for producing substantially globular lyogel in which a substantially globular lyogel, produced according to claim 13, is converted to an aerogel. Therefore, claim 24 is not obvious over Marisic in view of Fernholz et al. and/or Mielke et al.

Accordingly, each of claims 13-24 (Groups I-XII, respectively) is patentable over Marisic in view of Fernholz et al. and/or Mielke et al. Appellants believe the rejection to be improper and request allowance of claims 13-24.

IX. APPENDIX (37 C.F.R. § 1.192(c)(9))

Claim 13. A method of producing substantially globular lyogels in which the gel forming components are mixed to produce a lyosol, after which the lyosol, in order to form a lyogel, is introduced into a moving medium which flows substantially against the direction of gravity and which does not perceptibly dissolve in the lyosol.

Claim 14. A method according to claim 13, characterized in that the medium is air.

Claim 15. A method according to claim 14, characterized in that the air contains at least one further gaseous medium.

Claim 16. A method according to claim 14, characterized in that the lyosol is introduced dropwise into the moving air.

Claim 17. A method according to claim 14, characterized in that the lyosol is sprayed into the moving air.

Claim 18. A method according to at least one of claim 14, characterized in that the lyosol particles are screened according to size by the air stream which is directed in opposition to gravity.

Claim 19. A method according to at least one of claim 14, characterized in that the velocity of the air stream diminishes in the direction of flow.

Claim 20. A method according to claim 13, characterized in that the lyosol particles are trapped in a layer of water.

Claim 21. A method according to claim 13, characterized in that the lyosol particles are formed from silicic acid and mineral acid.

Claim 22. A method according to claim 13, characterized in that the lyosol is formed from a sodium water-glass solution and hydrochloric acid.

Claim 23. (Amended) A process comprising using the substantially globular lyogels produced according to claim 13, to produce aerogels.

Claim 24. A method of producing substantially globular lyogels in which a substantially globular lyogel, produced according to claim 13, is converted to an aerogel.

X. CONCLUSION

In view of the foregoing remarks, Appellants request withdrawal of the rejections and allowance of all pending claims.

Respectfully submitted,
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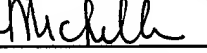

2/14/03

Michelle DeFalco *Date*